



# Road Facts 2010

Reference Guide On Roads In Malaysia



Cawangan Kejuruteraan Jalan & Geoteknik  
Jabatan Kerja Raya Malaysia



# Contents

## About Malaysia

Malaysia in South East Asia	17
The States in Malaysia	18
History In Brief	19
Basic Facts	20
Gross Domestic Product	21
Key Indicators on Economy and Transportation	22
Key Indicators in Demography	23

## Road Infrastructure

Road Construction in Malaysia	27
Expenditure on Road Development	28
Malaysia Road Development Index and Service Level	29

## Road Network

Malaysia Road Network	33
Federal Road System	34
Category of Federal Road	35
Numbering System for Federal Roads	36
Toll Expressways	37
List of Toll Expressways and Concessionaire	38
Numbers to Call in Case of Emergency	39
State Road System	40
Category of State Road and Numbering System	41
List of Main Federal Roads in Peninsular Malaysia	42
List of Main Federal Roads in Sabah and Sarawak	43

## Road Maintenance

About Road Maintenance	53
Scope of Work for Routine Maintenance	54
Scope of Work for Periodic Maintenance	55
Scope of Work for Emergency Maintenance	56
Maintenance Concessionaires	57
Bridges along Federal Roads	58
Weight Restriction Order	59
Maximum Permissible Vehicle Weight	61
Pavement Condition Assessment	62
Who to Call	63

## Road Safety

Road Safety Plan 2006 – 2010 and its Strategies	67
Our Rank in the World	68
Malaysia Road Deaths Indices Compared to the World (2004)	69
Alarming Facts about Global Road Traffic Accidents	70
Causes of Death in Malaysia (2007)	71
Road Accident Contributing Factors	72
Safe System Approach	73
Road Accident and Fatality	74
Road Accident and Fatality Indices	75
Road Accident by States	76
Road Accident Fatalities by Vehicle Types	77
Casualties and Road Accident by Road Category	78
Vehicles involved in Road Accident	79
Road Accident Casualties	80
Road Accident Types	81
Traffic Management During Construction	82
Choices for Traffic Control Devices	84
General Sign Arrangement During Construction	85
Black Spot Definition	86
New Ranking System for Blackspot	87
Accident Prevention – Road Safety Audit	88
Accident Reduction – Blackspot Eradication	89
Road Safety Auditor and Traffic Management Audit	90
Road Safety Officer, TMP, TMSR	91
Crash Risk and Crash Severity	92
Speed Limit	93
Determination of Speed Limit	94
Determination of Speed Limit – Explanatory Notes	95

## Road Traffic

Traffic Census and Vehicle Classification	99
Registered Vehicles and Drivers	100
Average Daily Traffic (ADT) at 63 Locations, Peninsular Malaysia, 2005 - 2009	101

# Contents

Types of Traffic Survey	105	Types of Safety Barrier based on Test Level	141
<b>Road Design Standard</b>		Criteria for High Risk Locations	142
Highway Planning and Design	109	Comparing Barrier Test Level Standards	143
Road Classification and Hierarchy	111	Impact Severity Level and Occupancy Risk	144
Access Control and Level of Service	112	Warrant Criteria for Motorcycle Lane	145
Design Level of Service and V/C Ratio	113	Sight Distances and Approach Stopping Sight Distances (ASD)	146
Capacity Analysis and P.C.U	114	Entering and Safe Intersection Sight Distances (ESD and SISD)	147
Design Vehicles	115	ASD, ESD and SISD	148
Turning Characteristics of Design Vehicles	116	Passing Sight Distances	149
Cross-Sectional Elements	117	Reaction Time	150
Roadside Clear Zone	119	Pedestrian Facilities	151
Selection of Design Standard for Roads	120	Selection of Intersection Type	152
Design Speed for Roads in Rural and Urban Areas	121	Traffic Signal	153
General Summary – Geometric Design Criteria for Roads in Rural Area	122	Signalised At-Grade Pedestrian Crossing	155
Superelevation and Transition Length for Roads in Rural Area	123	Design Vehicles and Spacing of Intersection	156
General Summary – Geometric Design Criteria for Roads in Urban Area	124	Provision of Right Turn Lane and U-Turn Facilities	157
Superelevation and Transition Length for Roads in Urban Area	125	Length of Deceleration and Acceleration Lanes	158
Horizontal Alignment	126	Determination of Interchange Type	159
Vertical Alignment	128	Type of Intersecting Facilities and Design Element	160
Vertical K-Values and Max/Min Grades	129	Minimum Acceleration and Deceleration Lengths for Interchange Terminals	161
Maximum Grade for Roads in Rural Area	130	Pavement Design	162
Maximum Grade for Roads in Urban Area	131	Flexible Pavement	163
Critical Grade Length	132	Rigid Pavement	164
Climbing Lane	133	Specialty Mixes and Surface Treatments	165
Passing/Overtaking Lane	134	<b>Traffic Signs</b>	
Types of Passing/Overtaking Lanes	135	About Road Traffic Signs	169
Longitudinal Safety Barriers and NCHRP 350 Test Level	136	Classification and Design of Traffic Signs	170
Warrants for Installation of Guardrail	137	Effective Traffic Signs and Letter Size	171
Typical Wire Rope Safety Barrier	138	Recommended Letter Height	172
Typical W-Beam Guardrail Barrier	139	Colour of Traffic Signs	173
Typical Concrete Barrier	140	Type, Standard Colour and Shape of Traffic Signs	174
		Clearance and Placement of Traffic Signs	175



# Contents

Distance, Destination and Directional Signs	176
Typical Arrangement of Traffic Signs	177
Typical Arrangement of Traffic Signs *	178
Road Markings	179
<b>Glossary</b>	<b>183</b>
<b>References</b>	<b>197</b>
<b>Disclaimer</b>	<b>199</b>